



Westport Schools

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08/10/2011 05:47 PM

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Hide Details

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2 Attachments



image001.gif RLM_Westport_Middle_School_RemedPlan_20110809.pdf

Attached is the plan for proposed work to remove source materials in Westport MS. Note I have indicated the sampling proposed for both the decontamination work and post removal work for wipes and air samples. School has decided to initially undertake sampling of 100% of the rooms where work occurs. Bottom line is 1 sample in each of the approximately 60 rooms with duplicates and blanks also collected (estimate 70 samples). We will also be collecting 6 dust wipes in each room, 4 as verification of decontamination work on movable non-porous furnishings and then 2 within room on floors or fixed furnishings. We estimate the total with blanks is over 400 wipe samples.

We are beginning the cleaning this evening and will be working double shifts in order to complete the work. The plan is being submitted more for information since a formal request for approval is not required for source removal based on our discussion. Note we have considered and incorporated the additional suggestions of EPA at our meeting on August 4, 2011 to use encapsulant at joints before installing new caulking for interior areas of caulk removal. The school has elected to move forward with both base bid work and alternates so all exterior and interior caulking and foam filler will be removed. We are also removing all carpets in the building and all tectum with mastic above. The only source materials we know of that were tested that will remain is the window glazing compound which will be coated as an interim measure.

The school has a meeting with MSBA to discuss the future options and funding for the building to assist in determining long range plans for continued use or possibly looking at alternatives for a new school building.

Robert L. May, Jr.



Vice President

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PCB Source Removal and Decontamination Project

**Westport Middle School
400 Old County Road
Westport, Massachusetts**

Westport Community Schools
Westport, MA

August 9 2011



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1 Introduction

This plan has been prepared by Fuss & O'Neill EnviroScience, LLC (EnviroScience) on behalf of Westport Community Schools located at 17 Main Road in Westport, MA 02790. The plan has been prepared to comply with the U.S. Environmental Protection Agency (EPA) requirements for proper removal and disposal of PCB containing building materials as PCB Bulk Product Waste in accordance with 40 CFR Part 761. Testing performed has determined several building materials to contain polychlorinated biphenyls (PCBs) above regulated concentrations at the existing Westport Middle School.

1.1 Background

The Westport Middle School is located at 400 Old County Road in Westport, MA. The building was constructed in 1969 and consists of two floors plus a basement boiler room totaling 116, 000 Square feet. The building was initially tested as part of due diligence work for hazardous building materials as part of a Massachusetts School Building Authority (MSBA) Green Repairs project for window and door replacement. A report summarizing the testing performed is included in Appendix A. The initial testing identified materials containing regulated concentrations of PCBs in bulk matrices as well as asbestos. These included the following:

Sampling and Analysis Results Table for PCB Bulk Samples

| SAMPLED LOCATION | MATERIAL TYPE | SAMPLE NO. | PCB CONTENT (mg/kg or ppm) |
|--|-------------------------------------|-------------|------------------------------------|
| Room 264 (C1, C2), Cafeteria (B7, C3, C7) | Interior Window glazing Compound | 511JH-C1A* | 76-80 (Aroclor 1254) |
| Doors to exterior near Room 122 and Doors to exterior near Room 166 | Interior Door caulking | 0511JH-C2A* | 1,200 - 1500 (Aroclor 1254) |
| Doors to exterior near Room 122,, Doors to exterior Main Entrance, Doors to exterior near Room 166 | Exterior Door caulking | 0511JH-C3A | 110 -240,000 (Aroclor 1254) |
| Exterior Side C1, C4 Window, Exterior Side A1, A4 Window, Exterior Side B4, B7 Window | Exterior Window Caulking | 0511JH-C4A* | 190,000 -270,000 (Aroclor 1254) |

* Materials also contain asbestos

Additional testing over the course of a 1 month time frame revealed interior air concentrations and dust containing PCBs above EPA regulatory guidance criteria. Additional building material source materials were tested and identified the following additional material containing PCBs at regulated concentrations:

Sampling and Analysis Results Table for PCB Bulk Materials

| SAMPLED LOCATION | MATERIAL TYPE | SAMPLE NO. | PCB CONTENT (mg/kg or ppm) |
|--|--|------------|--|
| Lower Level Room in Suite 106 | Mastic/Felt on Concrete above Tectum ceiling deck | 0627RM-30* | 64 (Aroclor 1254) |
| Lower Level Room in Suite 106 | Mastic/Felt on Concrete above Tectum ceiling deck | 0627RM-31* | 73 (Aroclor 1254) |
| Upper Level Cafeteria (A side Windows) | Caulking at concrete column between brick | 0629RM-06 | 2,900 (Aroclor 1248) 5,500 (Aroclor 1254) |
| Lower Level Room 154 | Compressible filler at Concrete column between column and gypsum (foam) | 0629RM-07 | 56 (Aroclor 1254) |

* Materials also contain asbestos

A pilot project was undertaken to remove select source materials from three locations including Rooms 164, 212, and 264. Based on the results of post removal testing the intent of Westport Community Schools is to conduct removal of source building materials and conduct decontamination of the school building replicating the work performed in the pilot project. Additional Alternate bid items are proposed to obtain costs to remove additional source materials and conduct interim measures. Initial sampling for asbestos was also conducted and items noted with an asterisk also contain asbestos >1% Chrysotile. Requirements for abatement and removal of PCB source materials with asbestos shall also require compliance with EPA requirements as well as Commonwealth of Massachusetts regulation for asbestos including containment and final air clearances. The subject site is a school facility also subject to the Asbestos Hazard Emergency Response Act (AHERA). This plan has been prepared by licensed asbestos project designer Robert L. May Jr.

1.2 Project Objectives

This project is for the removal of polychlorinated biphenyl PCB containing materials with equal to or greater than 50 parts per million (ppm) PCB as Bulk Product Waste. These materials include those materials noted above which have been identified at the facility. It should be noted that the site has not been fully inspected for presence of PCBs. The project will also include the decontamination of all interior non-porous items utilizing EPA and the Massachusetts Department of Public Health (MADPH) suggested protocols for cleaning surfaces contaminated with PCBs.

2 Remediation Plan

The work described in this plan shall meet the objectives identified in section 1.2 Project Objectives in accordance with 40 CFR Part 761. The remediation work shall be performed to ensure compliance with EPA Toxic Substance Control Act (TSCA) requirements and protect both public health and the environment. Materials classified as PCB Bulk Product Waste also contain asbestos and shall be properly disposed in compliance with federal and state regulatory requirements.

The proposed abatement activities to be performed by Remediation Contractor shall include the following:

1. Site preparation and controls to facilitate remediation of PCBs and asbestos.
2. Health and Safety in accordance with Occupation Safety and Health Administration (OSHA) requirements.
3. Recordkeeping and distribution as required in accordance with 40 CFR part 761.125 (c)(5).
4. Performance of selective demolition to remove tectum ceiling panels to facilitate removal of mastic at concrete ceiling. Note tectum contains less than 50 ppm but due to the presence of mastic adhesive on tectum shall be removed and disposed of as waste containing >50 ppm PCB. Work shall be performed upon setup of required containment prior to conducting removal.

PCB ABATEMENT REQUIREMENTS

PCB Decontamination and Bulk Product Waste Removal – Base Bid

1. Conduct detailed cleaning of all unit ventilation systems including both wall and ceiling units within entire school facility. Note interior unit ventilators with air intakes on roof shall include cleaning duct work from roof top to unit.
2. All unit ventilation systems shall be adjusted and balanced by a mechanical subcontractor for optimum ventilation within entire school facility.
3. Decontaminate interior non-porous materials throughout school building utilizing methods of decontamination consistent with EPA and MADPH requirements. The work shall include the use of HEPA vacuum and wet wiping to remove all visible dust. Existing dust concentrations exceed EPA guidance of 1 microgram per 100 square centimeters ($\text{ug}/100 \text{ cm}^2$) for a school facility. Surfaces shall be cleaned and sampling to confirm cleanliness shall be performed. Results of wipe samples collected must be below $1 \text{ ug}/100 \text{ cm}^2$. For porous items (eg papers, books etc, these items shall be HEPA vacuumed and placed in storage containers to be provided by Westport Community Schools. Each container shall be labeled with location of items for proper storage.
4. Remove existing exterior caulking at all ground floor windows located below a unit ventilation system air intake and those within 10 feet of an air intake unit. It is estimated that this will require removal of approximately 2,000 LF of caulking. Caulking contains PCBs >50 ppm and asbestos. Materials will be properly disposed and area of caulking removal cleaned. Once cleaned install new silicone caulking to re-seal joints. Provide backer rods as necessary.
5. Remove existing interior caulking at all interior columns, doors and expansion joints. It is estimated that this will require removal of approximately 1,500 LF of caulking. Caulking contains PCBs >50 ppm and asbestos. Materials will be properly disposed and area of caulking removal cleaned. Once caulking has been removed, clean the adjacent surfaces and coat with two parts Sikagard 62 or equival heavy –build colored epoxy coatings. Coating shall be applied by brush to cover entire surface of prior caulking joint and minimum of $\frac{1}{2}$ inch either side of joint. Product shall be installed with two contrasting colors so initial layer can be observed if wear of top coating

- occurs. Install new silicone caulking to re-seal joints. Provide backer rods as necessary.
6. Remove existing tectum ceilings located just below concrete floor or ceiling (not in grid). Material removal will result in some removal of PCB containing mastic. Mastic contains PCBs >50 ppm PCB and asbestos. It is estimated that this will require removal of approximately 70,000 SF of tectum panels and associated mastic adhesive/felt. Remaining mastic shall be scraped to the extent possible to remove not less than 90% of all accessible material utilizing hand scraping and then clean all surfaces. Entire concrete ceiling and remaining mastic shall be encapsulated with a bridging encapsulant due to the presence of asbestos. Where mechanical equipment and above top of walls, prevents removal of the tectum and mastic, the materials will be left in place and also coated with the bridging encapsulant to seal edges.
 7. Remove interior carpeting in all locations including cleaning of mastic to facilitate installation of new flooring consisting of VCT. Westport Community Schools to provide product requirements for replacement materials.
 8. Interior work areas shall be cleaned to meet asbestos final visual inspection criteria of no visible dust. A post removal inspection shall be performed and work areas shall be required to meet final air clearance sampling in accordance with AHERA regulations by Transmission Electron Microscopy (TEM).
 9. All wastes generated shall be disposed of as Bulk Product Waste > 50 ppm which also contains asbestos. Note segregation of interior non asbestos caulking at interior columns is at the discretion of the contractor.

PCB Bulk Product Waste Removal – Alternates

1. Remove all existing exterior caulking at all windows and doors at all remaining locations. It is estimated that this will require removal of approximately 3,500 LF of caulking. Caulking contains PCBs >50 ppm and asbestos. Materials will be properly disposed and area of caulking removal cleaned. Once cleaned install new silicone caulking to re-seal joints. Provide backer rods as necessary.
2. Conduct interim measures to coat existing interior window glazing compound with 2 coats of epoxy coating. Products to include Sikagard 62 or equivalent heavy –build colored epoxy coatings. Product shall be installed with two contrasting colors so initial layer can be observed if wear of top coating occurs. It is estimated that there are 240 window systems with glazing compounds to be included.
3. Remove existing interior foam filler at all interior columns and beams. It is estimated that this will require removal of approximately 12,000 LF of foam filler. Materials contain PCBs >50 ppm. Materials will be properly disposed and area removal cleaned. Once cleaned install new compressible filler to re-seal joints.
4. All wastes generated shall be disposed of as Bulk Product Waste > 50 ppm which also contains asbestos where noted. Note segregation of interior non asbestos foam filler at interior columns and beams is at the discretion of the contractor.

Remediation activities to be performed by others shall include the following:

1. Monitoring remediation activities as Owner's representative shall be performed by firm to be named.

2. Collection of verification samples in accordance with Sup-parts O in accordance with 40 CFR Part 761 for PCB analysis shall be performed by Owner's Representative to be named.

Prior to abatement and remediation activities, site preparation and controls shall be established. PCB Bulk Product Waste will be removed and transported off-site for disposal at a permitted hazardous waste landfill which is an EPA, TSCA approved facility for PCB waste ≥ 50 ppm. Materials containing < 50 ppm will be transported to a non-hazardous solid waste disposal facility. PCB Bulk Product Waste shall be removed and properly disposed in accordance with 40 CFR Part 761.62.

2.1 Site Preparation and Controls

The work shall be performed in accordance with this work plan. Prior to initiating PCB Removal the following site controls will be implemented.

- Remediation Contractor shall prepare a site specific work plan as detailed in specification section attached.
- Remediation Contractor shall prepare a Health & Safety Plan (HASP) developed specific to the site and work activities to be performed. All workers shall follow applicable federal and state regulation with regard to work activities, including but not limited to OSHA regulation including personal protection and respiratory protection requirements.
- During all remediation activities, Remediation Contractor shall maintain control of all entrances and exits to the project site to ensure only authorized personnel enter the work areas and are afforded proper personal protective equipment and as required respiratory protection.
- Work zones shall be established in accordance with technical specification to include abatement zone, decontamination zone and support zone.
- The Support zone shall include parking lot areas adjacent to the building. Remediation Contractor shall place waste containers on exterior paved surface adjacent to entrance doors.
- Appropriate PCB waste containers shall be lined covered and secured. The PCB waste containers shall be properly marked as described in 40 CFR part 761.40 and 761.45.
- The support zone shall be segregated from parking and drive ways utilizing orange safety fencing in an area established as necessary for all support vehicles and waste containers.

2.2 Work Area Protection – Decontamination Zone

- The decontamination zones shall include the corridors which run parallel to the work areas. The floor surface within the decontamination zone shall be completely covered with a single layer of 6-mil polyethylene sheeting.
- Post warning signs in accordance with 29 CFR 1910.1200 at all approaches to the work area. Asbestos warning signs shall also be posted in accordance with 29 CFR 1926.1101. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the PCB M_L markers at each entrance to the work area.
- All doors leading to the exterior shall be closed, locked and sealed with a single layer of 6-mil polyethylene sheeting. Door shall not be utilized for entrance or exit to decontamination zone.
- The Remediation Contractor shall establish contiguous to the work area, a decontamination enclosure consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure. The Remediation Contractor shall ensure that employees enter and exit the Abatement Zone through the decontamination area.
- Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.
- Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3) and 29 CFR 1926.1101 for asbestos. The showers shall be adjacent both to the equipment room and the clean room.
- Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each worker's use. Following showering, each worker must then change into street clothing in clean change areas.
- Decontamination area entry procedures. The Remediation Contractor shall ensure that all workers follow proper decontamination procedures for entry into a Regulated Work area (Abatement Zone) including but not limited to the following:
 1. Enter the decontamination area through the clean room;
 2. Remove and deposit street clothing within a locker provided for their use;
 3. Put on protective clothing and respiratory protection before leaving the clean room.
 4. Before entering the Abatement Zone, the Remediation Contractor shall ensure that workers pass through the equipment room.

- Decontamination area exit procedures. The Remediation Contractor shall ensure that all workers follow proper decontamination procedures for exit from a Regulated Work area including but not limited to the following:
 1. Before leaving the regulated area (Abatement Zone), workers shall remove all gross contamination and debris from their protective clothing.
 2. Workers shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.
 3. Workers shall not remove their respirators in the equipment room.
 4. Workers shall shower prior to entering the clean room.
 5. After showering, workers shall enter the clean room before changing into street clothes.
- Equipment Room for Waste Removal: The Remediation Contractor shall establish a two chamber equipment room or area that is adjacent to the Abatement Zone for the decontamination of waste containers and equipment as noted above.
 1. The area must be of sufficient size as to accommodate cleaning of equipment and removing waste without spreading contamination beyond the area (as determined by visible accumulations).
 2. All equipment and surfaces of containers filled with PCB and asbestos waste must be cleaned prior to removing them from the equipment room or area.
 3. All waste shall have appropriate labels for both PCBs and asbestos.

2.3 Work Area Protection – Abatement Zone

- Post warning signs in accordance with 29 CFR 1910.1200 and 29 CFR 1926.1101 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other Toxic or Hazardous Substances. These signs should include the PCB M_L markers at each entrance to the work area.
- Isolation barriers shall be installed as critical barriers at interior side of all window and door systems to isolate the abatement zone from areas outside of proposed work to prevent release of PCB dust, debris or liquids. Protection shall include two layers of 6-mil polyethylene sheeting securely affixed to the inside finish surfaces to isolate window or door systems.
- Isolation barriers shall be installed on interior wall surfaces within the abatement zone to minimize dispersal of dust and debris. Protection shall include two layers of 4-mil polyethylene sheeting securely affixed to the interior finish surfaces.
-

- To minimize dust and debris negative pressure filtration devices shall be utilized to provide a negative pressure enclosure. The use of negative air filtration units with HEPA filtration shall establish a minimum of 4 air changes per hour within the work area. The design parameters for static pressure differentials between the inside and outside of enclosures shall be in a range from 0.02 to 0.10 inches of water gauge, depending on conditions. All zones inside the enclosure shall have less pressure than the ambient pressure outside of the enclosure (-0.02 inches water gauge differential).
- All other openings to the building interior such as unit ventilation, ducts, grilles shall be securely sealed with a two layers of 6-mil polyethylene sheeting from the building interior.
- Isolation barriers shall remain in place throughout work to prevent migration of any dust, debris or liquids resulting from PCB Bulk Product Waste and asbestos removal. All debris generated during operations shall be HEPA vacuumed continuously throughout the work shift and at the end of a work shift to avoid accumulation. Any tears or rips that occur in isolation barriers shall be repaired or removed and replaced with new.
- All equipment utilized to perform cutting, or demolition shall be equipped with appropriate dust collection systems.
- All surfaces adjacent to materials removed shall be properly decontaminated (cleaned) upon completing the removal of PCB Bulk Product Waste and asbestos.

2.4 Removal Procedures

The following removal procedures shall be utilized to conduct PCB Bulk Product Waste

2.4.1 PCB Bulk Product Waste Materials

- PCB Bulk Product Waste Materials include caulking and black waterproofing mastic with felt. Materials shall be removed in a manner which does not breakdown the materials into fine dust or powder to the extent feasible. Equipment and tools to be utilized shall include hand tools and mechanical equipment to remove materials from substrates. Mechanical removal equipment shall as appropriate be fitted with dust collection systems. Any resulting dust, debris or liquid materials or other PCB Bulk Product waste shall be removed with additional engineering controls such as use of a HEPA vacuum to remove accumulations during removal. Once removed, materials shall be placed into appropriate temporary containers such as 6-mil polyethylene disposal bags for controlled transport to PCB waste containers at the end of each work shift. PCB Bulk Product Waste shall be stored for disposal in accordance with 40 CFR 761.65 and marked in accordance with 40 CFR Part 761.40 and 761.45.

2.5 Cleaning and Decontamination Procedures

- The Remediation Contractor shall be responsible for complete cleaning and decontamination of the Abatement Zone upon completion of work. The Abatement Zone will be required to meet proposed Verification Sampling limits established in Work Plan.
- The Remediation Contractor shall utilize HEPA vacuum and wet cleaning products to remove all visible dust and debris from all surfaces within the work area. If specialty products are utilized the Remediation Contractor shall utilize in accordance with manufacturer's specifications including any additional safety and disposal requirements for such use.
- Cleaning of containment barriers shall be performed leaving critical barriers at openings, decontamination units and negative air filtration devices in place until results of post verification sampling indicate acceptable limits. Cleaning shall be performed from ceiling to floors.
- Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with §761.60 (a).
- All rags and other cleaning materials used to clean shall also be properly disposed as PCB Remediation Waste. All PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.61(a)(5)(v)(A). All waste containers shall be appropriately marked in accordance with 40 CFR Part §761.40 and §761.45.
- Equipment to be utilized in connection with the removal of PCB Bulk Product Waste, and Bulk PCB Remediation waste including waste collection or that will or may come in direct contact with the site contaminants shall be decontaminated prior to leaving the site to prevent migration of the contaminated residues from the project site. Decontamination shall be in accordance with 40 CFR Part §761.79 and Sub-part S procedures.
- All non-disposable equipment and tools employed in the course of the project will be decontaminated at the conclusion of each work day through the following sequence:
 1. Initial tap water rinse, to remove gross soil
 2. Hexane or equivalent wash
 3. Tap water rinse
 4. Second Hexane or equivalent wash
 5. Second tap water rinse
- The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon barrels for off-site disposal.

2.6 Post Source Removal Sampling Plan

- Following the completion of the Bulk Product Waste removal Fuss & O'Neill EnviroScience, LLC, shall implement the following verification sampling plan in accordance with 40 CFR Part 761.
- Upon completion of work in each area, a visual inspection of all remediated surfaces for visible evidence of dust, debris and liquids shall be performed. Surfaces shall also be inspected for visible PCB source materials that may not have been removed. The visual inspection shall provide in a preliminary way, verification that removal work has been completed in accordance with this plan. In addition to the remediation surfaces the surfaces of protective coverings and isolation barriers shall be inspected to ensure they are cleaned of dust and debris. No sampling shall be performed until the visual inspection is complete and all surfaces are visually free of dust, debris and in the work area.

2.6.1 Interior Air Sampling

- Upon completion of the work and subsequent cleaning of the containment barriers prior to removal of the containment barriers the Owner's Representative shall collect interior air samples. Work involves both asbestos containing and PCB containing materials.

Asbestos

Initially, each containment area must pass a final visual inspection by a licensed asbestos project monitor for no visible dust or debris. Upon acceptance with containment barriers still in place an aggressive air sampling of the work area shall be performed. The building is a school subject to Asbestos Hazard Emergency Response Act (AHERA) criteria and final air clearance samples must be collected for analysis utilizing transmission Electron Microscopy (TEM) for any work area where material quantity removed exceeds 160 square feet or 260 linear feet. TEM air samples shall be collected on a frequency of one sample per room or a minimum of 5 inside air samples per established containment area which ever is greater. Samples shall be collected utilizing high flow air sampling pumped checked for proper calibration with a rotometer at a rate of not more than 10 liters of air per minute (lpm). A minimum volume of 1,999 Liters shall be collected. Samples shall be sent to EMSL Analytical, Inc of Woburn, MA for analysis utilizing TEM. Clearance air samples for each set must not exceed an average of 70 S/mm² to meet clearance criteria. Once a passing result is achieved the polyethylene containment barriers shall be removed and area cleaned utilizing HEPA vacuum and wet wiping.

PCB Post Removal Air Sampling

Air samples will be collected in accordance with EPA Method TO-10A as homologues initially with potential congener analysis as necessitated by results. Sufficient sample volume will be collected to ensure a detection limit that allows quantification of the data relative to the EPA action concentration of 300 nanograms per cubic meter (ng/m³) for children ages 6 to <12 in

schools. Reference standard EPA <http://www.epa.gov/pCBSincaulk/caulk-faqs.pdf>, Maximum Concentrations of PCBs in School Indoor Air (ng/m³).

Sampling shall be performed in representative locations consisting of the following minimum number of samples:

Abatement Zone – 100% of all abatement locations (initially) estimate 60 samples

Ancillary Spaces – 25% of Corridors, Gymnasium, Auditorium, Storage Areas, restrooms, and other rooms where abatement is not required estimate an additional 10 samples

If advisory concentrations are exceeded in these locations, then additional cleaning and sampling may be required. Before sampling, the ventilation system will be operational and running at normal conditions to simulate exposure during occupancy. Air samples will be collected at the equal distance points within the room using a pump connected with tubing to a polyurethane foam (PUF) cartridge. The PUF will be placed at around 4 feet off the floor to collect air in the breathing zone of the most sensitive occupants (elementary aged children). The PUF will be position so that the inlet is facing downward. The pump will have a flow rate of 1 to 5 L/min and will be run long enough to collect 900 liters of air. For each sampling event, one duplicate sample and 1 blank per 20 samples will be collected for analysis. We estimate the total number of samples to be 82 including duplicates and blanks. After sampling is complete, the samples will be collected, have associated proper paperwork filled out, and be sent to an accredited laboratory for PCB analysis. The analysis method shall be by EPA Method TO-10A for homologues. The sampling results will be evaluated using EPA SW846 Chapter 9 for statistical accuracy.

2.6.2 Non-Porous Surfaces

- Sampling of cleaned non-porous surfaces shall include furnishings (eg, desks, tables chairs) and permanent fixed surfaces such as countertops, shelving, unit ventilators and floors. The sampling shall be performed at two time frames. First upon completion of cleaning of furnishings in place, but prior to removing from the work areas, a minimum of 4 representative surfaces within each room shall be sampled to determine cleanliness. Secondly, upon completion of removal work, floor and fixed furnishing surfaces within decontamination zone and outside of containment barriers shall be performed at a frequency of two samples per location upon completion of all work. Wipe samples shall be collected from the surfaces as described in Sub-part P of 40 CFR Part 761 as verification of cleaning but at the frequency noted.
- Wipe sampling of non-porous surfaces shall be performed as noted and compared to high occupancy standard for non-porous surfaces of $\leq 1 \text{ ug}/100\text{cm}^2$ for a school facility as recommended by EPA. A total of 360 samples for verification shall be collected along with 20 blank samples collected and 36 duplicate samples for an estimated total of 416 samples. The laboratory shall be an accredited laboratory for PCB analysis. The analysis method shall include extraction using EPA Method 3540C (Soxhlet Extraction) and analysis method SW846 8082.

2.7 Waste Disposal Requirements

2.7.1 Marking of Waste Containers

- All waste containers must be marked with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred. All waste containers must be marked with a PCB M_L marker.
- All waste containers containing PCB Bulk Product Waste, Bulk PCB Remediation Waste and PCB contaminated debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be labeled as follows:

DOT Class 9 UN3432 (solid)
Or UN2315 (liquid) PCB Waste
RQ
Waste for Disposal

Federal law prohibits improper disposal.
If found, contact the nearest police or public safety authority or
The U.S. Environmental Protection Agency.

- a) Generator's Information: _____
- b) Manifest Tracking No.: _____
- c) Accumulation Start Date: _____
- d) EPA ID No.: _____
- e) EPA Waste No.: _____
- f) Total Weight: _____
- g) Container No.: _____

HANDLE WITH CARE!

In addition, these containers must be marked with a PCB M_L marker.

- Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; un-obscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

2.7.2 On-Site Waste Management and Disposal of PCB Waste

- All solid waste material, containment system components, used personnel protective equipment, and other solid wastes generated during the work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of roll-off containers or DOT-approved 55-gallon barrels.

- The Remediation Contractor shall be responsible for all packaging, labeling, transport, disposal and record-keeping associated with PCB or PCB contaminated waste in accordance with all federal, state and local regulations.
- The Remediation Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.
- The Remediation Contractor shall provide to the transporter at the time of transfer appropriate shipping records or uniform waste manifests as required by the federal, state and local regulations with a copy to the Owner and Owner's Authorized Representative.
- Remediation Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated waste site in a timely manner and in accordance with all federal, state and local regulations.
- The Remediation Contractor shall assure that disposal of polychlorinated biphenyls (PCB) containing waste material is at a facility approved to accept such waste and shall provide a tracking/manifest form signed by the landfill's authorized representative.
- If roll-off containers are to be utilized for containerization of the abatement wastes the following shall apply:
 1. All roll-off containers or other similar vessels utilized shall be watertight and lined with 6-mil polyethylene sheeting or equivalent impermeable lining, and equipped with a secured and impermeable cover.
 2. The impermeable cover shall remain securely in place at all times when material is not being actively placed in the vessels. The Remediation Contractor shall be responsible for ensuring that the cover remains securely intact until the container is removed from the site.
- If 55-Gallon barrels are to be utilized for waste containerization, the barrels shall consist of suitable DOT-approved 55-gallon barrels that are watertight and free of corrosion, perforations, punctures, or other damage. All barrels shall be securely covered and sealed at the conclusion of each work day.
- The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.
- A waste roll-off and barrel staging area shall be designated prior to initiation of the abatement work, and approved by the Owner's Authorized Representative. If this area is located outside of the building, the area (or areas) shall be surrounded by a chain-link fence with a minimum height of six feet. The fence shall be labeled with a PCB M_I marker.
- Properly containerized waste with PCB ≥ 50 ppm must be transported by a licensed hauler and shipped as PCB Bulk Product Waste or Bulk PCB Remediation Waste for disposal at a permitted facility for PCB waste ≥ 50 ppm. As follows:

1. In an incinerator approved under 40 CFR Part §761.70.
2. In a chemical waste landfill approved under 40 CFR Part §761.75.
3. In a hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA.

Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.

- Materials containing <50 ppm will be transported to one of the following facilities:
 1. A facility permitted, licensed, or registered by a State to manage municipal solid waste subject to part 40 CFR Part §761.258.
 2. A facility permitted, licensed, or registered by a State to manage non-municipal non-hazardous waste subject to 40 CFR Part §761. 257.5 through 257.30, as applicable.
 3. A hazardous waste landfill permitted by EPA under section 3004 of RCRA, or by a State authorized under section 3006 of RCRA.

Waste manifests must show chain of custody. Provide required copies of the waste shipment records for wastes to the Owner as required.

- Any PCB Liquid Water Waste shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with 40 CFR Part §761.60 (a).
- Any chemicals, solvents or other products used during decontamination shall be properly containerized as PCB Liquid Waste. Waste must be properly decontaminated or disposed in accordance with 40 CFR Part §761.60 (a) or 40 CFR Part §761.79 (g). PCB Liquid Waste shall be transported by a licensed hauler and shipped for treatment or disposal. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.
- All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the material.
- Transporters of the waste are prohibited from "back hauling" any freight after the disposition of the Owner's waste stream until decontamination of the vehicle and/or trailer is assured.